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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,623	08/30/2001	Seung-Gi Shin	P56420	6732
7590	04/06/2004		EXAMINER	
Robert E. Bushnell Suite 300 1522 K Street, N.W. Washington, DC 20005			LAO, LUN YI	
			ART UNIT	PAPER NUMBER
			2673	8

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,623

Applicant(s)

SHIN ET AL.

Examiner

Lao Y Lun

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/12/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 5-6 and 22-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-4, 7-16, 18-21, 24-26 and 28 is/are rejected.
- 7) ☒ Claim(s) 1, 17, 26, 27 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-4, 7-16, 18, 19 and 24-25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bassetti et al(5,757,338).

As to claims 1, 3-4, 7-16, 18, 19 and 24-25, Bassetti et al teach a computer system comprising an LCD display(22); a clock generator(a clock generator in PC)(see figures 6-7; column 5, lines 24-29 and column 2, lines 30-33); a graphic processing unit(72, 52, 54, 56) for converting an image signal

Art Unit: 2673

provided from at least one of the CPU and a memory(50) into a signal displayed on the LCD(22); a liquid crystal display transmitter(62) for transmitting the image signal to the LCD(22) and a spread spectrum unit(74) provided between the graphic processing unit(72, 52, 54, 56) and the LCD transmitter(62) for modulating a frequency of the clock signal from the clock generator within a predetermined frequency range(see figures 7-12, 15; column 2, lines 30-33; column 7, lines 2-8; column 8, lines 52-68; column 9; column 16, lines 10-68 and column 17, lines 1-41).

As to claims 1 and 16, if applicants think the a spread spectrum unit(74) is not provided between the graphic processing unit(72, 52, 54, 56) and the LCD(22), it would have been obvious to have a spread spectrum unit(74) locate between the graphic processing unit(72, 52, 54, 56) and the LCD(22) since such modification would have involved a mere change in the location of the spread spectrum unit(74) and it is generally recognized as being within the level of ordinary skill in the art and Bassetti has disclosed the location of the spread spectrum unit(74) could be changed(see column 8, lines 18-23).

As to claim 22, Bassetti et al teach the spread spectrum unit(74) being arranged between the graphic processing unit(72, 52, 54, 56) and the LCD display transmitter(62)(see figure 7 and column 9).

As to claims 3, 8, 18 and 24-25, Bassetti et al teach the spread spectrum unit(74) being installed on a clock signal line for transmitting the clock signal(see figure 7).

As to claims 12 and 14, Bassetti et al teach the step of modulating the frequency(74) being between the steps of converting the image signal(from first clock rate(MCLK to second clock rate VCLK) and the transmitting the image signal(62)(see figure 7 and column 9).

As to claims 4, 10, and 19, Bassetti et al teach the spread spectrum unit(74 or 82 or 82') modulating the frequency of the clock signal by linearly increasing or decreasing the frequency of the clock signal(see figures 3, 7, 10-13; column 3, lines 47-62; column 6, lines 66-68; column 7, lines 1-8; column 13, lines 45-68; column 14 and column 15, lines 1-3).

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bassetti et al(5,757,338) in view of Leung et al(6,580,432).

Bassetti et al fail to point out the spread spectrum unit being integrally formed with either one of the graphic processing unit and a liquid crystal display transmitter.

Leung et al teach the spread spectrum unit(130) can be integrally formed with the graphic processing unit(see figure 1 and column 3, lines 27-36). It would have been obvious to have modified Bassetti et al with the teaching of Leung et

Art Unit: 2673

al, so as to reduce the number of connection wires, ensure more stable connections and reduce amounts of hardware on its internal structure and interface and Bassetti et al teach the spread spectrum unit(74) could be integrated with the graphics controller(see column 8, lines 18-23).

6. Claims 1, 3, 7-11, 16, 18, 24-25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al(6,229,513) in view of Chen(6,433,766).

As to claims 1,3, 7-11, 16, 18, 24-25 and 28, Nakano et al teach a computer system comprising an LCD display(10); a clock generator(a clock generator in PC)(see figure 1; column 4, lines 40-67 and column 5, lines 1-11); an LCD transmitter(130); a graphic processing unit(170, 160) for converting an image signal provided from at least one of the CPU and a memory into a signal displayed on the LCD(10) and a display control unit(110) provided between the graphic processing unit(170, 160) and the LCD display transmitter(130) for modulating a frequency of the clock signal from the clock generator(see figures 1, 4A, 4B; column 4, lines 40-67; column 5, lines 1-11; column 6, lines 58-68 and column 7, lines 1-42).

Nakano et al fail to disclose a spread spectrum unit for modulating a frequency of the clock signal **within a predetermined frequency range**.

Chen teach a computer system comprising an LCD display(31) having a spread spectrum unit(display control unit(34)) for modulating a frequency of the clock signal **within a predetermined frequency range**(see figures 3-5; column 3, lines 21-68 and column 4, lines 1-45). It would have been obvious to have modified Nakano et al with the teaching of Chen, so as to provide a high quality of an LCD display and a data transmission method and device used in a liquid

Art Unit: 2673

crystal display circuit for reducing the electromagnetic interference intensity generated from data lines(see column 1, lines 13-16).

As to claims 7 and 24, Nakano et al as modified teach the spread spectrum unit(110) arranged between the display transmitter(130) and a display unit(10)(see Nakano's figure 1).

As to claims 3, 8, 18 and 25, Nakano et al as modified teach the spread spectrum unit(110) being installed on a clock signal line for transmitting a clock signal(see Nakano's figures 1 and 4A).

As to claim 10, Chen teaches a clock modulating waveform is a sine linear waveform(see figure 4).

As to claim 28, Chen teach the spread spectrum unit(34) being installed on the clock signal line in accordance with the size of electromagnetic interference(see figures 2-5; column 2, lines 1-20; column 3, lines 53-68 and column 4, lines 1-23).

7. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al(6,229,513) in view of Chen(6,433,766) and Leung et al(6,580,432).

Nakano et al as modified fail to point out the spread spectrum unit being integrally formed with either one of the graphic processing unit and a liquid crystal display transmitter.

Leung et al teach the spread spectrum unit(130) can be integrally formed with the graphic processing unit(see figure 1 and column 3, lines 27-36). It would have been obvious to have modified Nakano et al as modified with the teaching of Leung et al, so as to reduce the number of connection wires, ensure more

Art Unit: 2673

stable connections and reduce amounts of hardware on its internal structure and interface.

Allowable Subject Matter

8. Claims 2, 17, 26-27 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-4, 11-16, 18-21, 24-25 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that Bassetti fails to show any kind of motivation to change the location on pages 10-11. The examiner disagrees with that since Bassetti teaches the locations or configurations of the spread spectrum unit(74); graphic processing unit(72, 52, 54, 56) and the LCD(22) could be changed(see column 8, lines 18-23).

Applicants argue that Bassetti fails to teach the spread spectrum unit being coupled with the display transmitter on page 12. The examiner disagrees with that even though the spread spectrum unit(74) is not **directly** coupled to the display transmitter(62), the spread spectrum unit(74) is coupled to the display transmitter(62) via the buffer(78) and multiplexer(79)(see figure 7).

Applicants argue that Bassetti fails to teach the spread spectrum modulating a frequency of the clock signal from the clock generator within a predetermined frequency range on page 12. The examiner disagrees with that since Bassetti teaches such feature(see figures 3, 5, 7-15; column 3, lines 47-62; column 4, lines 49-66; column 5, lines 9-39; column 13, lines 45-67).

Applicants argue that Bassetti et al does not teach the graphic processing unit(72, 52, 54, 56) for converting the image signal provided from at least one of the central processing unit and a memory into a signal accommodating display on the liquid crystal display on page 13. The examiner disagrees with that since the graphic processing unit(72, 52, 54, 56) for converting an image signal output from a memory(50) from a memory clock frequency to a video clock frequency, which is a signal accommodating display on the liquid crystal display(22)(see column 8, lines 65-68 and column 9, lines 1-27).

Applicants argue that Leung et al do not teach the spread spectrum unit integrated with a graphic processing unit since the spread-spectrum FIFO(106) is not a graphic processing unit on pages 14 and 18. However, Leung et al teach the spread spectrum unit(130) can be integrated or independent(see column 3, lines 26-35) and Bassetti et al teach the spread spectrum unit(74) could be integrated with the graphics controller(see column 8, lines 18-23). The function of the spread spectrum unit would not be changed by integrated with a graphic processing unit or a display transmitter or independent.

Applicants argue that the unit(170, 160) is not a graphic processing unit since it can not convert an image signal provided from at least one of the CPU and a memory into a signal displayed on the liquid crystal display on page 15. The examiner disagrees with that since Nakano et al teach a graphic processing unit(170, 160) for converting an image signal provided from at least one of the

Art Unit: 2673

central processing unit(180) and a memory into an LCD display timing image signal(see figure 1; column 4, lines 59-67 and column 5, lines 1-9).

Applicants argue that Nakano as modified by Chen do not teach the spread spectrum unit between the LCD transmitter and the graphic processing unit on pages 16 and 17. The examiner disagrees with that since Nakano as modified by Chen teach the spread spectrum unit(34) between the LCD transmitter(130) and the graphic processing unit(170, 160)(see Nakano's figure 1 and Chen's figure 3).

Applicants argues that if the dual modulated clock signal are used from Chen, the display of Nakano may not work properly on page 16. The examiner disagrees with that since the displays of Nakano and Chen are both LCD displays.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

Art Unit: 2673

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi, Lao whose telephone number is (703) 305-4873.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached at (703) 305-4938.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

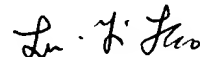
or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

April 2, 2004



Lun-yi Lao
Primary Examiner